

An Open Pilot Trial of a Physical Activity (PA) Intervention Designed to Address Barriers Experienced by Hispanic and Black Mothers

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ABSTRACT

INTRODUCTION: Mothers, especially those with marginalized identities, often struggle to meet physical activity (PA) guidelines. We examined feasibility, acceptability, and preliminary efficacy of Moms on the Move (MOMs), a community-based PA promotion intervention targeting Hispanic and Black mothers delivered in partnership with a youth sports organization in Providence, RI.

METHODS: Feasibility targets centered around enrollment (i.e., $n \geq 30$ participants), retention (i.e., $\geq 80\%$ of participants through follow-up), and assessment (i.e., collection of PA data from $\geq 80\%$ of participants at multiple timepoints), while acceptability targets centered around participant satisfaction (i.e., $\geq 80\%$ of participants being satisfied with the intervention). For preliminary efficacy, we assessed weekly minutes of moderate-to-vigorous intensity PA (MVPA) via 7-Day PA Recall (PAR) at baseline, intervention end (8 weeks), and follow-up (12 weeks), and examined within-person changes in MVPA over time using paired T-tests. Stratified analysis was used to examine differences between participants who were already meeting the national guideline of ≥ 150 minutes of MVPA per week at baseline and those who were not.

RESULTS: We met recruitment ($n=35$) and retention (94%) targets but only collected PA data at multiple timepoints from 21 participants (64%). Most participants (94%) were satisfied with the intervention, all (100%) said they learned from the program, and all (100%) said they would recommend participation to a friend. Participants who were not meeting the MVPA guideline at baseline ($n=12$) reported an increase in MVPA at both intervention end (mean change: 110.27 minutes, Cohen's d : 0.89) and follow-up (mean change: 82.09 minutes, Cohen's d : 0.76).

CONCLUSIONS: Findings around recruitment, retention, and participant satisfaction were promising, though assessing MVPA via the PAR, which requires a semi-structured interview, proved challenging. Nonetheless, the findings, which also showed that insufficiently active mothers had significantly higher levels of MVPA at intervention end and follow-up, support testing MOMs in a fully powered, randomized controlled trial.

KEYWORDS: physical activity; youth sports; mothers; community-based; pilot

INTRODUCTION

It is unquestionable that mothers face unique health concerns. They experience health issues, including those specific to pregnancy and childbirth, even long after giving birth (e.g., dyspareunia and chronic postpartum pain¹). In addition, mothers experience generalized health concerns that are contextualized by their social role. Mothers care for the needs of their families before caring for themselves.² By recognizing the complex nature of mothers' health within the context of their social role and environment, we can better understand how to implement interventions to improve health outcomes for mothers.

Physical activity (PA) is a modifiable lifestyle behavior that has numerous health benefits, including reducing the risk of obesity³ and chronic disease.⁴ In fact, meeting the national PA guidelines, which include ≥ 150 minutes of MVPA per week,⁵ is associated with a 29% reduced risk of all-cause mortality.⁶ However, mothers are less likely to engage in sufficient moderate-to-vigorous intensity PA (MVPA) to experience benefits compared to the general population,⁵ and trends indicate PA among mothers is decreasing.^{8,9} In response, research has focused on both understanding barriers and facilitators of PA among mothers, and developing interventions tailored to addressing these needs. Barriers to PA for mothers include lack of social support, lack of childcare, lack of time due to competing responsibilities, prioritization of children's needs, and guilt associated with exercise as an activity that takes away time from family obligations.¹⁰⁻¹³ Successful PA interventions developed for mothers have focused on increasing social support (Juwono et al, 2020) by implementing group-based interventions.¹⁴⁻¹⁶

While such interventions hold promise for improving mother's PA, previous studies have had low representation of mothers from underserved and marginalized social groups. Increasing PA among mothers with multiple marginalized identities may benefit from an intersectional approach,¹⁷ which acknowledges that individuals hold multiple social identities, embedded within interlocking systems of oppression and privilege, allowing for nuanced understanding of PA experiences and resources. Notably, Hispanic and Black women, and those with low socioeconomic status (SES) report especially low levels of PA,¹⁸⁻²¹ contributing to increased risk for poor health outcomes.^{22,23} In addition to PA barriers experienced by mothers generally, those with

marginalized identities often lack access to PA opportunities.^{7,24,25} As PA interventions for marginalized populations tend to focus on women, without the specific tailoring to mothers, there is a significant need to address barriers experienced by low SES and/or Hispanic and Black mothers.

To date, few PA interventions have focused on addressing the needs of mothers with marginalized identities. In a systematic review of mothers' PA and related interventions,⁷ merely three studies included samples with at least a fourth of the participants identifying as Hispanic and/or Black,²⁶⁻²⁸ and only one of these included a focus on low-income mothers.²⁷ While all interventions included similar components (e.g., in person group PA sessions), only three of the interventions successfully increased PA among mothers.²⁷⁻²⁹ Among these, just one study assessed PA maintenance post-intervention, reporting that PA increases were not maintained.²⁹ Notably, none of the studies used an intersectionality framework to address the multiple and intersecting identities of the mothers. Together, the interventions demonstrate modest and growing evidence in support for PA interventions addressing the unique needs of mothers with multiple marginalized identities.

The current study builds on our team's prior work demonstrating the feasibility and acceptability of partnering with youth sports organizations to deliver group-based PA sessions to mothers.³⁰ Specifically, we assess the feasibility, acceptability, and preliminary efficacy of the community-based Moms on the Move (MOMs) intervention, which was intentionally developed to address PA barriers experienced by Hispanic and Black mothers with low SES. To our knowledge, this is the first PA intervention for mothers that was designed using an intersectionality approach.¹⁷ Our primary aim was to examine whether *a priori* targets for enrollment, retention, assessment completion, and participant satisfaction were met. We also examined changes in MVPA from baseline to intervention end, and one-month post-intervention to assess preliminary efficacy. In doing so, this study adds to a very limited literature of studies examining maintenance of PA intervention effects among mothers. It was funded by Advance Rhode Island Clinical and Translational Research (Advance RI-CTR), which is supported by Institutional Development Award Number U54GM115677 from the National Institute of General Medical Sciences of the National Institutes of Health. Advance RI-CTR also provided support through targeted consultations to strengthen the study design.

METHODS

Study Design

We conducted an eight-week, single-arm open pilot trial during the fall of 2023 football season to assess the preliminary efficacy of MOMs. We examined changes in self-reported MVPA from baseline to intervention end (at 8 weeks)

and a month later (at 12 weeks) to assess maintenance. The intervention was delivered in partnership with a youth football and cheerleading organization in Providence, RI, that predominantly serves Hispanic and Black families. Procedures and materials for the study were approved by the Brown University Institutional Review Board, and the study was registered at www.clinicaltrials.gov (NCT05461742).

Participants

Participants were at least 18 years old, self-identified as female, were the mother or primary caregiver of a child who was on one of the partner organization's football teams or cheerleading squads, had email access, and spoke English. Eligibility was not restricted based on minutes of MVPA at baseline, but for safety reasons, participants were required to pass the Physical Activity Readiness Questionnaire.³¹ Research assistants recruited participants by approaching parents and distributing flyers at the field where the organization was practicing. The president of the organization also shared the flyer with parents via social media and an app used to communicate with families. All participants provided written informed consent and received remuneration for completing assessments.

Intervention Description

The MOMs intervention consists of three components: in-person group PA sessions, goal setting with motivational interviewing, and tailored written materials. The theory-driven intervention was designed using the intersectionality framework,³² social cognitive theory (SCT),³³ and the Transtheoretical Model (TTM).³⁴ The intersectionality framework³² was used to ensure that PA barriers faced by Hispanic and Black mothers, due to their intersecting identities, were addressed by the intervention [Table 1]. For example, MOMs was administered during children's sports practices to address time and access barriers. By partnering with youth sports organizations whose mission is to promote exercise, and including a group PA component, the intervention also addressed social support barriers. Further, by holding the group PA sessions during practice, where children were supervised and mothers already traveled to and from, the intervention addressed childcare and transportation barriers, and alleviated guilt that mothers report when taking time away from family obligations. With respect to behavioral theory, MOMs targeted SCT and TTM constructs that influenced PA in our prior studies,³⁵⁻³⁸ including PA social support, enjoyment, self-efficacy, outcome expectancies, and cognitive and behavioral strategies used to advance through the stages of change.

The previously published in-person component was designed using a staged approach with a community advisory board (CAB) of coaches and parents from the partner organization.^{30,39} This ensured that the intervention was culturally relevant, feasible, and acceptable to the organization

Table 1. Intervention strategies to address physical activity barriers experienced by racial and ethnic minority mothers

Identity	Physical Activity Barrier	Strategy
Mother	Lack of time due to other responsibilities	Intervention occurs during children's sports practices; a time mothers have already blocked off
	Guilt from not prioritizing children	Participants can be active while present for their children's extracurriculars
	Lack of social support*	Group PA sessions create a community of mothers who are active together
	Lack of childcare*	Children under coach supervision; childcare available for additional children
Racial/ Ethnic Minority	Lack of culturally relevant interventions	Intervention is adapted for Hispanic & Black women; also offered in Spanish
	Lack of access to PA opportunities*	Intervention is provided free of charge in a safe and accessible space
	Lack of transportation*	Intervention is at a location where participants must already travel to and from

*Especially pronounced among individuals with low SES

and its families. One-hour group PA sessions, facilitated by an experienced personal trainer who was part of the partner organization, were scheduled three times per week during practice. Sessions were offered free of charge and participants could attend as desired. All PA equipment used was provided, including a yoga mat and workout bag with resistance bands, small weights, and a jump rope. Sessions included a five-minute warm-up, 50 minutes of circuit-style aerobic and strength-training activities with modifications to accommodate different fitness levels, and a five-minute cool down. Child supervision was available for participants who had additional children (e.g., five years and under) that were not practicing football or cheerleading.

The goal-setting and written materials' components, evidence-based approaches to teach behavioral skills, were especially included to promote PA maintenance. These components were adapted from prior successful women-targeted PA interventions conducted by our team.³⁵⁻³⁷ Participants were invited to complete two, one-on-one goal-setting phone calls (~20 minutes) with a research assistant trained in motivational interviewing.⁴⁰ The first call was scheduled at baseline and the second midway through the intervention (four weeks). Participants learned about key behavior change techniques (such as goal-setting and self-monitoring) and established personal PA goals. The second call allowed participants to check their progress, set new goals, and discuss being active once the sessions end. For written materials, participants were emailed materials weekly throughout the intervention period. Materials included tip sheets on PA-related topics (e.g., useful facts about PA, health benefits, stretches) and motivation-matched PA manuals based on their responses to questionnaires at baseline and four weeks. Manuals emphasized behavioral strategies for increasing activity, including goal-setting, self-monitoring, problem-solving barriers, increasing social support, and planning rewards for meeting PA goals. These evidence-based materials have been shown to help Hispanic and Black women increase PA in our prior studies.^{36-38, 41-43}

Measures

For feasibility, we examined whether *a priori* set targets for enrollment (i.e., $n \geq 30$ participants), retention (i.e., $\geq 80\%$ of participants through 12 weeks), and assessment (i.e., collection of PA data from $\geq 80\%$ of participants at multiple time-points) were achieved. Thresholds were informed by existing literature on intervention pilot studies,^{44,45} expected effect size in a fully powered randomized controlled trial given our team's prior studies promoting PA among racial and ethnic minority women,^{38,41,46} and contextual factors specific to the study population and setting, including the number of families belonging to the organization.

For acceptability, we examined participants' responses to a consumer satisfaction questionnaire, also used by our team in prior studies.^{38,47-49} This was completed at the end of the intervention via an online questionnaire. The intervention would be deemed acceptable if $\geq 80\%$ of participants were satisfied with it, felt they learned something, and would recommend the program to a friend.

For preliminary efficacy, we assessed whether participants experienced changes in weekly minutes of MVPA. Weekly minutes of MVPA were self-reported using the 7-Day Physical Activity Recall (PAR)⁵⁰ at baseline, intervention end (8 weeks), and follow-up (12 weeks). The 7-Day PAR, conducted via a semi-structured interview, has been used across many PA studies and has consistently demonstrated acceptable reliability, internal consistency, and congruent validity with objective PA measures,⁵¹⁻⁵⁵ along with sensitivity to changes in MVPA.^{56,57} Our team has extensive experience with administering the 7-Day PAR, which requires annual recertification. Participants were given the flexibility of completing 7-Day PARs in-person during practice or via phone. In assessing changes in MVPA during the study period, self-reported occupational PA was excluded.

Participant characteristics (i.e., age, number of children living at home, marital status, employment status, race/ethnicity, educational attainment, annual household income, and self-reported height and weight) were assessed via an online questionnaire at baseline.

Statistical Analysis

We descriptively analyzed feasibility targets, acceptability targets, and participant characteristics. Stratified analysis was used to examine differences in characteristics between participants who were already meeting the national MVPA guideline at baseline (i.e., self-reported ≥ 150 minutes per week) and those who were not. Fisher's exact tests were used to examine group differences for categorical variables, while T-tests were used to examine group differences for ordinal and continuous variables. To assess preliminary efficacy, we examined within-person changes in weekly minutes of MVPA over time. Specifically, we ran unadjusted paired T-tests to compare baseline MVPA to MVPA at intervention

end (8 weeks) and follow-up (12 weeks), first for the full sample and then stratified by baseline MVPA (i.e., meeting the guideline vs. not). Change scores and effect sizes (i.e., Cohen's d) were calculated for significant findings. Analyses were run using StataSE statistical software and an alpha of 0.05 was used for significance.

RESULTS

We recruited 35 participants in less than a month, exceeding the target of ≥ 30 participants. Only two participants withdrew from the study, resulting in a retention rate of 94%, also exceeding the target of $\geq 80\%$. However, while 7-Day

Table 2. Participant characteristics

	Study sample (n=21)	Those already meeting MVPA guideline at baseline with multiple 7-Day PARs (n=9)	Those not meeting MVPA guideline at baseline with multiple 7-Day PARs (n=12)	P-value for group comparison
Age in years Missing (n)	37.18 (5.00) 10	35.00 (4.95) 4	39.00 (4.65) 6	0.201
Number of children living in home Missing (n)	1.93 (1.22) 6	1.50 (0.55) 3	2.22 (1.48) 3	0.278
Marital status <i>Married or living with partner</i> <i>Single</i> Missing (n)	3 (20%) 12 (80%) 6	1 (14%) 6 (86%) 2	2 (25%) 6 (75%) 4	0.554
Employment status <i>Unemployed</i> <i>Part-time</i> <i>Full-time</i> Missing (n)	6 (38%) 4 (25%) 6 (38%) 5	2 (29%) 2 (29%) 3 (43%) 2	4 (44%) 2 (22%) 3 (33%) 3	0.591
Race/ethnicity <i>Non-Hispanic White</i> <i>Hispanic</i> <i>Black</i> <i>American Indian/Alaskan Native</i> <i>Multiracial</i> Missing (n)	1 (6%) 6 (38%) 5 (31%) 1 (6%) 3 (19%) 5	0 (0%) 3 (43%) 2 (29%) 1 (14%) 1 (14%) 2	1 (11%) 3 (33%) 3 (33%) 0 (0%) 2 (22%) 3	1.000
Educational attainment <i><12 years</i> <i>High school</i> <i>Vocational/technical school</i> <i>Some college</i> <i>College graduate</i> <i>Post-graduate studies</i> Missing (n)	1 (6%) 4 (25%) 1 (6%) 4 (25%) 4 (25%) 2 (13%) 5	0 (0%) 3 (43%) 1 (14%) 2 (29%) 1 (14%) 0 (0%) 2	1 (11%) 1 (11%) 0 (0%) 2 (22%) 3 (33%) 2 (22%) 3	0.181
Annual household income <i><\$30k</i> <i>\$30k<\$50k</i> <i>≥\$50k</i> Missing (n)	6 (38%) 4 (25%) 6 (38%) 5	2 (29%) 2 (29%) 3 (43%) 2	4 (44%) 2 (22%) 3 (33%) 3	0.591
Body mass index <i><18.5</i> <i>18.5–24.9</i> <i>25–29.9</i> <i>≥30</i> Missing (n)	0 (0%) 0 (0%) 3 (21%) 11 (79%) 7	0 (0%) 0 (0%) 1 (17%) 5 (83%) 3	0 (0%) 0 (0%) 2 (25%) 6 (75%) 4	0.733

P-value is for Fisher's exact test for categorical variables and T-tests for continuous and ordinal variables

PAR data was collected for all participants at baseline, MVPA data was only collected for 21 participants (64%) at multiple timepoints, which did not meet the target of >80% of the sample. Among participants in the analytical sample (n=21), 57% self-reported <150 minutes of weekly MVPA at baseline. On average, participants were 37.2 years old (SD: 5.0) and had 1.9 children (SD: 1.2). While not an inclusion criterion, all participants were classified as either overweight or obese (i.e., had a BMI ≥ 25); however, self-reported height or weight information was missing for seven participants. The racial/ethnic composition of the sample was 38% Hispanic, 31% non-Hispanic Black, 19% multiracial, 6% American Indian/Alaskan Native, and 6% non-Hispanic White. Most (80%) of the sample were single mothers, with 38% unemployed, 25% working part-time, and 38% working full-time. The sample was diverse with respect to socioeconomic status [Table 2]. No significant differences in participant characteristics were found between those meeting the MVPA guideline at baseline and those not.

Sixteen participants completed the consumer satisfaction survey [Table 3]. Most participants (94%) were satisfied with the intervention. Specifically, 75% of participants were very satisfied with the intervention and 19% were satisfied;

6% were a little satisfied and 0% were not satisfied. All participants (100%) reported that they learned something about exercising from participating in the program and that they would recommend the program to a friend; thus, acceptability targets were met. All participants also found the PA sessions pleasing (75% very pleasing) and most found them beneficial (56% very beneficial). When asked how motivated they felt to continue to exercise after the program, 75% felt motivated or very motivated.

Participants in the analytical sample reported engaging in an average of 106.5 (SD: 131.0) minutes of MVPA/week at baseline, 136.4 (SD: 120.9) minutes of MVPA at intervention end (8 weeks), and 103.4 (SD: 100.9) minutes of MVPA at follow-up (12 weeks); changes in MVPA over time for the full sample were not statistically significant [Table 4]. From stratified analyses, participants who were not meeting the guideline at baseline reported significantly more MVPA at both intervention end (mean change: 110.27 minutes, Cohen's d: 0.89) and follow-up (mean change: 82.09 minutes, Cohen's d: 0.76) compared to baseline. Conversely, participants who were meeting the guideline at baseline reported significantly less MVPA at follow-up compared to baseline (mean change: -116.75 minutes, Cohen's d: -1.26).

Table 3. Participant satisfaction with the intervention

	Study sample (n=16)	Those already meeting MVPA guideline at baseline (n=8)	Those not meeting MVPA guideline at baseline (n=8)	P-value for group comparison
How satisfied were you with the program overall?				0.693
<i>I was not satisfied</i>	0 (0%)	0 (0%)	0 (0%)	
<i>I was a little satisfied</i>	1 (6%)	0 (0%)	1 (13%)	
<i>I was satisfied</i>	3 (19%)	2 (25%)	1 (13%)	
<i>I was very satisfied</i>	12 (75%)	6 (75%)	6 (75%)	
How pleasing did you find the physical activity sessions?				0.278
<i>They were not pleasing at all</i>	0 (0%)	0 (0%)	0 (0%)	
<i>A little pleasing</i>	0 (0%)	0 (0%)	0 (0%)	
<i>They were pleasing</i>	4 (25%)	1 (13%)	3 (38%)	
<i>They were very pleasing</i>	12 (75%)	7 (88%)	5 (63%)	
How beneficial did you find the physical activity sessions?				0.273
<i>Not beneficial at all</i>	1 (6%)	0 (0%)	1 (13%)	
<i>A little beneficial</i>	1 (6%)	1 (13%)	0 (0%)	
<i>They were beneficial</i>	5 (31%)	1 (13%)	4 (50%)	
<i>Very beneficial</i>	9 (56%)	6 (75%)	3 (38%)	
Do you think that you learned something about exercising from participating in this program?				1.000
<i>Yes</i>	16 (100%)	8 (100%)	8 (100%)	
<i>No</i>	0 (0%)	0 (0%)	0 (0%)	
Would you recommend the program to a friend?				1.000
<i>Yes</i>	16 (100%)	8 (100%)	8 (100%)	
<i>No</i>	0 (0%)	0 (0%)	0 (0%)	
How motivated do you feel to continue exercising after the program?				0.646
<i>I do not feel motivated</i>	1 (6%)	0 (0%)	1 (12%)	
<i>I feel a little motivated</i>	3 (19%)	1 (13%)	2 (25%)	
<i>I feel motivated</i>	4 (25%)	3 (38%)	1 (13%)	
<i>I feel very motivated</i>	8 (50%)	4 (50%)	4 (50%)	

n (%); p-value is for Fisher's exact test for categorical variables and T-tests for continuous and ordinal variables

Table 4. Self-reported weekly minutes of MVPA at baseline, 8 weeks, and 12 weeks

	Baseline mean (SD) [95% CI]	8 weeks mean (SD) [95% CI]	P-value for baseline to 8 weeks comparison (n)	12 weeks mean (SD) [95% CI]	P-value for baseline to 12 weeks comparison (n)
Analytical sample	106.48 (131.01) [46.84, 166.11]	136.40 (120.94) [79.80, 193.00]	0.461 (n=20)	103.42 (100.91) [54.78, 152.06]	0.961 (n=19)
Those already meeting MVPA guideline at baseline	219.33 (127.11) [121.63, 317.04]	142.56 (133.52) [38.13, 246.99]	0.111 (n=9)	105.63 (91.24) [29.35, 181.90]	0.010* (n=7)
Those not meeting MVPA guideline at baseline	21.83 (34.89) [-0.34, 44.00]	131.36 (113.84) [54.88, 207.85]	0.014* (n=11)	101.82 (111.79) [26.72, 176.92]	0.031* (n=12)

SD: standard deviation; CI: confidence interval; *: $p < 0.05$

DISCUSSION

Feasibility and acceptability findings around recruitment, retention, and participant satisfaction were very promising. However, missing data for PA at intervention end and follow-up was abundant. Notably, we assessed PA via the 7-Day PAR, which requires a semi-structured interview. Given the relatively short study period (e.g., intervention end and follow-up being only four weeks apart), we limited the completion window for PARs to two weeks at each timepoint; in addition, getting in contact with participants to schedule and conduct PARs within such a limited timeframe was difficult. As such, we strongly recommend that future studies with similar constraints consider alternate measures of PA such as self-reported survey measures and accelerometry.

Preliminary efficacy findings, particularly for mothers who are not meeting PA guidelines, were also promising. These findings and the high participants' satisfaction are likely the result of MOMs being designed specifically to address PA barriers experienced by high-risk mothers. The growing use of the intersectionality framework in PA research is evident from a recent systematic scoping review⁵⁸; however, it is worth noting that 41 of the 45 studies were qualitative, none were interventions, and only one study⁵⁹ included motherhood as a relevant identity. Findings from the latter, combined with the present study, underscore the importance of social and community support, and addressing access, affordability, childcare, and mom guilt when designing PA interventions for this population.

Our team previously pilot-tested the in-person component of MOMs and similarly observed increases in MVPA among participants not meeting the MVPA guideline at baseline.³⁰ However, in the previous six-week pilot, increases were significant midway through the intervention (three weeks), but not at intervention end (six weeks). A notable difference between the two pilots, aside from intervention length (6 weeks vs. 8 weeks), is that while all PA equipment was supplied for the initial pilot, aside from yoga mats (which were gifts to the participants), the equipment stayed on site at the practice field and was later donated to the sports organization. By providing participants with their own PA equipment to keep in the present pilot, we facilitated

opportunities for participants to complete workouts outside of the scheduled PA sessions, which may have contributed to the significant increases in MVPA found among those who were insufficiently active at baseline, especially when assessing the maintenance of the intervention effect at 12 weeks, a month after the PA sessions has ended.

Expanding on the initial pilot, this pilot also included goal-setting with motivational interviewing and tailored written materials. Goal-setting and motivational interviewing are widely used strategies in successful PA interventions, supporting both the initiation and maintenance of MVPA over time.⁶⁰⁻⁶² Written materials offer a low-cost way to easily disseminate important PA-related information, with research demonstrating the positive effect tailored materials specifically can have.^{35-38,63} These additional intervention components also likely contributed to the significant increases in MVPA found among those who were insufficiently active at baseline, though future, larger studies could examine the individual and potential synergistic effects of the different MOMs intervention components.

Taken together, findings from this pilot study support testing MOMs in a fully powered randomized controlled trial (RCT), though it is important to note this study has significant limitations. The single-arm open pilot trial design with no control group precludes causal claims. As we cannot attribute the observed changes in MVPA to the intervention, caution is warranted when interpreting the preliminary efficacy findings. Notably, that we observed a decrease in MVPA among sufficiently active participants, makes regression to the mean a possible explanation for the findings. That said, given that the baseline assessment occurred during August and the follow-up assessment occurred during November, the observed decrease in MVPA among sufficiently active participants is also consistent with well-documented PA seasonality effects.⁶⁴ A fully powered RCT would address this key limitation. That those who were already meeting the MVPA guideline at baseline did not experience an increase in MVPA is not perceived as a limitation, as sufficiently active individuals are generally excluded from PA promotion interventions. We did not exclude active individuals because

it was important to the CAB that the program was offered to the entire community and did not create an impression that it was only for mothers who were not physically fit. Also, that those who were active at baseline reported significantly less MVPA at follow-up supports their inclusion in future studies. A final limitation of the present study was the use of the 7-Day PAR. Not only did this measure likely contribute to the large amount of missing PA data at intervention end and follow-up, but the PAR is also subject to social desirability and recall bias. Thus, future studies should aim to also include alternate and more objective measures of MVPA (e.g., accelerometry).

Despite limitations, this study contributes to the nascent literature on PA interventions for mothers by demonstrating how an intersectionality approach helps more fully address PA barriers and through assessment of the maintenance of intervention effects.

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